

## Cellular and Molecular Biology Course Syllabus

Biology 3310, section 2  
Lecture: TuTh 8:00-9:15 am

Fall 2018

Instructor: Dr. Jamila Newton  
OH: Th 9:30-10:30 am, N202

**Course:** Basic concepts of cellular phenomena dealt with at the molecular level. 3 Units

Prerequisites: *Intro Bio (1050 and 1150), and Intro Chem (1100 and 1110), or equivalents, with C- or above. Completion of one semester of Organic Chem (CHEM 3310) is highly recommended.*

Textbook: Essential Cell Biology, 4th ed. Alberts, et al. ISBN: 9780815344544

**Course Intentions:** The fundamental unit of life is the cell; therefore cell biology forms the base upon which modern biomedical sciences are built. This course will emphasize the study of eukaryotic cell structure and function, including molecular interactions, membrane proteins, cell signaling, intracellular transport, and energy generation. Experimental techniques used in biological research will be discussed along with some broader applications of cell biology.

**Objectives:** At the end of this course, students should:

- Have a conceptual understanding of the molecular basis of various cellular processes.
- Know how cell function and structure are related.
- Understand the similarities and differences between various cell types.
- Be able to think critically and interpret hypothetical experimental observations based on class concepts.
- Hopefully develop the curiosity and desire to incorporate their knowledge of cellular biology into their everyday lives.

**Pace:** Compared to other biology classes you may have had, Bio 3310 tends to be a fast-paced, intense course that requires good study skills, daily review of course materials, and a commitment to learning. I strongly recommend that students create daily study schedules, form a study group that meets several times a week, or meet regularly with a tutor.

**Materials:** Computer and internet access are required outside of class. Students are expected to check the Blackboard site biweekly for updates, announcements, handouts, helpful links, assignment instructions, and online quizzes. The textbook does a good job of explaining concepts that we will not have enough time to cover in detail during lecture. Before attending lecture, students should at least skim the relevant textbook chapter. Lecture slides will be posted on blackboard (pdf format), often by the start of class. Slides may include concepts not covered in the textbook chapter, optional information that may be helpful or of interest, and practice questions of various levels of difficulty. At the start of each unit a "Basic Concepts" handout will be posted online. This outlines words and concepts that students are expected to know before attending class, often based on information that students should already have learned in previous courses.

**Grades:** The total grade will be based out of 390 points. This scheme may change slightly during the semester.

<b>Assignments</b>	<b>~10 pts each</b>	<b>All</b>	<b>50 pts</b>
<b>Quizzes</b>	<b>10 pts each</b>	<b>Best 10 of 12</b>	<b>100 pts</b>
<b>Midterm Exams</b>	<b>60 pts each</b>	<b>Best 3 of 4</b>	<b>180 pts</b>
<b>Final Exam</b>	<b>60 pts</b>	<b>Mandatory</b>	<b>60 pts</b>
<b>Total</b>			<b>390 points</b>

A	A-	B+	B	B-	C+	C	C-	D+	D	F
≥ 93%	92.9 - 90	89.9 - 87	86.9 - 83	82.9 - 80	79.9 - 77	76.9 - 73	72.9 - 70	69.9 - 67	66.9 - 60	< 60%

**Tests:** For exams and quizzes, you will not be allowed to leave the room once the test has started. Calculations will be simple so you will not be allowed to use a calculator. Tests will be based on any and all of the following: Concepts discussed during lecture, information on the lecture slides, textbook reading, and additional assigned readings/videos. The Final Exam is cumulative. Be sure to bring a blank 882-E scantron to every exam. At the end of the semester, your lowest midterm exam score and your two lowest quiz scores will be dropped.

**Assignments:** Different types of assignments that will be assigned throughout the semester. Assignments are designed to (1) help students develop their abilities to think critically and summarize complex concepts, and/or (2) introduce students to the “bigger picture” biomedical and industrial applications of cell biology. For the most part, assignments are meant to work complementary to the tests. You will most likely not be directly tested on content from assignments.

**Extra Credit:** Opportunities for extra credit are rare. Any extra points offered as a part of a graded item will be applied directly to that item's grade. “Stand alone” extra credit opportunities will not initially be calculated into your final course grade. They will only be included if they clearly bump up your letter grade. (Example: You have a B-, and are three points away from a B. If you have one point extra credit, you will receive the B- you earned. If you have three points extra credit, you will receive a B.)

### **Attendance, Absences, and Make-Ups:**

- Daily attendance to lecture is **crucial**. Though attendance is not an official part of your grade, there will be graded, **unannounced (pop) quizzes throughout the semester**. These quizzes may be given at any time during the class.
- Any student that has **three or more unexcused absences may be dropped** from the class by the instructor.
- Unless otherwise noted, **all assignments are due by the beginning of class**. Assignments may be turned in ahead of time. Assignments will lose 10% of their grade for each day turned in late (if turned in 15 minutes after the start of class, it is considered a day late). Late assignments must be turned in within five days of the original due date.
- **If you are absent, you should email a clear image of the assignment to the instructor**. The email must be received in the instructor's inbox before the start of class. This will provide proof that the assignment was completed on time. Remember that sending an email does not guarantee that it will be received in time, and last-minute “technical difficulties” are not a valid excuse. In order to receive a grade, the **hard copy must still be turned in** when you return to class.
- Athletes who will be absent due to athletic competition/event are expected to provide documentation of the event dates, and take exams/turn in assignments prior to the event. The student is also responsible for reminding the instructor of an upcoming absence, and for scheduling a date/time to take the exam. Failure to do so in a timely fashion results in a zero.
- **There will be no make-ups for assignments, quizzes, exams (including the final)**. If you arrive late to a test (an exam or quiz), you will not be given any extra time. If you miss a test, you will receive a zero. Exceptions:
  - **Death or imminent hospitalization** of an immediate family member or dependent on the day of the test. This requires proper documentation.
  - Students who experience an **incapacitating illness or accident** on the day of the test. This requires a note from the student's physician (not a family member) or from the University Health Services. The documentation must explicitly show or state that the illness, injury, or incident occurred during the time of the class, or directly prevented the student from taking the test. Documentation must be provided within 7 days of the missed test.
  - It is not uncommon for students to experience bouts of being **emotionally overwhelmed and extremely stressed** during their college career. If these feelings become incapacitating, the student is advised to seek help from a health professional. Make-ups will be allowed if the student provides a signed note from a physician or licensed clinical therapist. The note must explicitly list date range of incapacitation (past and/or future) and detail the limitations to the student's academic activities (i.e. cannot physically attend class, is incapable of completing mentally challenging tasks, etc). Your mental health is your business, so the note does need to give any diagnoses or confidential information.
- Make-up tests may be different versions of the original test, but the concepts and format will remain the same.

### **Contacting the instructor:**

- **For emails**, do not email me over non-urgent matters. Emails should be sent to [jnewton4@csustan.edu](mailto:jnewton4@csustan.edu) with "Bio 3310" in the subject line. I often only check my email twice a day during the week and not at all during weekends. Not all emails will receive a response, particularly if the concern will be addressed, or if a question can be asked in lecture/during office hours.
- **Office hours** will be weekly, at a date/time to be determined. Please remember that office hours are pretty much open to everyone, including people from other courses, or students with non-course related business. Additional office hours can easily be made with Dr. Newton by appointment. Please specify if you'd like the meeting to be one-on-one, or open for other students to attend. Unless otherwise noted, please assume any office hours will be in N 202.

### **Cheating:** Cheating is absolutely forbidden.

- Any of the following are considered cheating:
  - **Plagiarism** is defined as using another person's words without proper reference/citation. Although in preparing problem sets you may paraphrase written information from texts or articles, you must use your own words, clearly cite the source and identify the text that was paraphrased, and demonstrate that you understand that information. If you quote directly or nearly directly from a source, you must indicate this with the use quotation marks and cite the source of information.
  - **Copying** wording, answers, and materials from another source (i.e. not a product of your own work and/or not in your own words). Thus includes assignments and tests, whether it be from current or previous classmates, or another source.
  - **Using devices, resources, or other material** that have not been explicitly allowed during tests is prohibited. Cheating includes using notes, searching the internet, or consulting other resources during any test, including online quizzes.
  - **Altering answers** on a graded material, then trying to have the grade changed is cheating.
  - **False representation** of you as someone else in this course is a gravely serious offense. Signing in, taking quizzes, or completing any course material for another student is considered cheating.
  - **Forging or altering a grade** change form is also a gravely serious offense. The Registrar's Office is wise to this; they carefully check signatures and send copies of all grade change requests to the faculty member.
- A person cheating receives a 0 for that assignment/test; their name and a description of the offense may sent to the Dean of Students. Any zeros received on tests due to cheating cannot be dropped. Cheating offenses may be punished by disciplinary probation, suspension, or expulsion. These actions may be noted on your transcript! If you think a fellow student is cheating we urge you to discretely tell us about it. We will maintain your anonymity.

**Cellular and Molecular Biology  
Course Schedule, Fall 2018**

BIOL 3310.002

Tu, Th 8:00 am -- 9:15 am

Dr. Jamila Newton

Assignments, due dates, and additional readings will be posted online with sufficient notice. This schedule is tentative and subject to minor changes.

<b>Date</b>	<b>Topic</b>	<b>Chp.</b>
<b>Unit 1</b>		
Th Aug 23	A Brief History of Cell Biology	1
Tu Aug 28	Chemical Components of Cells	2
Th Aug 30	Energy, Catalysts, and Biosynthesis	3
Tu Sep 4	Protein Structure and Function	4
Th Sep 6	<i>Review</i>	
<b>Tu Sep 11</b>	<b>Exam 1</b>	
<b>Unit 2</b>		
Th Sep 13	Membrane Structure	11
Tu Sep 18	Transport Across Cell Membranes	12
Th Sep 20	Cell Signaling	16
Tu Sep 25	Cell Signaling	16
Th Sep 27	<i>To be determined</i>	
Tu Oct 2	<i>Review</i>	
<b>Th Oct 4</b>	<b>Exam 2</b>	
<b>Unit 3</b>		
Tu Oct 9	Glucose Catabolism	13
Th Oct 11	Aerobic Respiration	14
Tu Oct 16	Photosynthesis	14
Th Oct 18	Intracellular Compartments and Protein Transport	15
Tu Oct 23	<i>Review</i>	
<b>Th Oct 25</b>	<b>Exam 3</b>	
<b>Unit 4</b>		
Tu Oct 30	Cytoskeleton- Proteins	17
Th Nov 1	Cytoskeleton- Movement	17
Tu Nov 6	<i>TBD</i>	
Th Nov 8	Cell-Cell Organization and the Extracellular Space	20
Tu Nov 13	Cell-Cell Organization and the Extracellular Space	20
Th Nov 15	<i>Review</i>	
<b>Tu Nov 20</b>	<b>Exam 4</b>	
<b>Unit 5</b>		
Tu Nov 27	Special Topic: Cell Cycle and Cancer	
Th Nov 29	Special Topic: Cellular Differentiation and Stem Cells	
Tu Nov 4	Special Topic: Cellular Basis of Infectious Disease	
Th Nov 6	<i>Review</i>	
<b>Th Dec 13</b>	<b>FINAL EXAM 8:30 – 10:30 a</b>	

\* Sep 19 enrollment census date